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TRANSLATION

MOTION SICKNESS: PROPHYLAXIS AND TREATMENT

BY

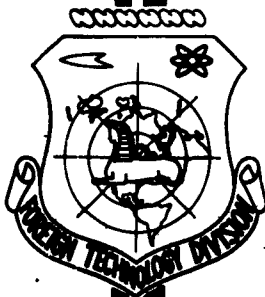
Docent G. Komendantov and V. Kopanov

FOREIGN TECHNOLOGY DIVISION

AIR FORCE SYSTEMS COMMAND

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By: Docent G. Komendantov and V. Kopanev

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MOTION SICKNESS: PROPHYLAXIS AND TREATMENT

Docent G. Komendantov and V. Kopanev,
Candidate of the Medical Sciences

The problem of motion sickness has become significant owing to the rapid growth of all forms of transportation. Sea, air, car sickness, etc. are distinguished depending on the type of transportation. All of these ailments have a common cause — the mechanical effect on the human vestibular system caused by changes in direction and speed of motion. Of course there are some differences in the origin of the various forms of motion sickness, but they are still insufficiently studied.

Motion sickness is controlled by technical improvement of transportation facilities, the establishment of an optimal microclimatic environment for passengers, and the special selection and training of transportation workers.

Conditioning of the vestibular system is the best preventive for all forms of motion sickness. Active conditioning is carried out by performing various acrobatic and gymnastic exercises on trampolines, aero wheels, etc., while so-called passive conditioning is carried out on the Baran chair, Khilovo swing, and other apparatus. A conditioning

method that has become widespread is the Yarotskiy method: execution of a special set of head movements. Perfectly simple, it can be recommended both for crews and for some contingents of passengers. The principle of the sequence of tasks and load increases must be observed during conditioning. As a rule the conditioning sessions are conducted three hours a week. Gymnastic exercises are performed for 45-60 minutes. Conditioning is considered satisfactory if the person can endure in succession rotation in three planes, rocking for thirty minutes, and then rotation in three planes again.

Motion sickness is controlled by improving the general hygienic conditions at places of work: by establishing optimal temperature, humidity, and pressure, decontamination of air, etc.

Diet during transportation should also be carefully reasoned out. In order to avert exhaustion during long periods of rocking, it is desirable to use food products rich in extractive substances and piquant seasonings, which induce rapid juice secretion and good digestion and assimilation of food. Also, liquid foods have a lesser effect on the receptors of the gastro-intestinal tract.

Many drugs have also been proposed for the prevention and cure of motion sickness. These are mostly drugs which lower the parasympathetic tone of the central nervous system, which, as a rule, is raised in the rolling process. This group includes atropine, scopolamine, aeron,* and others. Use of these drugs has proved effective in 40-80 per cent of the cases.

* Trans. Note: Aeron = 0.0001 g of scopolamine camphorate + 0.0001 g hyoscyamine camphorate.

Drugs which lower the excitability of the central nervous system work well: soporifics, antihistamines, and compounds of the aminazine type. Especially effective is medinal (barbital sodium) which causes irradiation of the inhibition process of the cerebral cortex and reduces the excitability of the brain stem. Positive results from its use are observed in 70 per cent of the cases.

Drugs are sometimes used depending on the syndrome. For example, camphor in the presence of cardio-vascular symptoms, anesthesin (ethyl aminobenzoate) in the presence of gastro-intestinal symptoms, etc., are of great help. It is perfectly natural that these compounds, though they are used fairly often, are less effective, since they provide short-term relief without eliminating the causes of the ailment.

Compounds from among the nervous system stimulants, which increase the nonspecific resistance of the organism, are effectively used. For example, vitamin B₆ gives positive results in 70-95 per cent of the cases depending on the method of application. Dibazol in a dose of 0.01-0.02 increases resistance to motion sickness in 70 per cent of the cases. The advantage of this group of compounds is that they do not, as a rule, lower performance and do not produce side effects. The use of these compounds is especially advantageous among crew members and also among passengers who must begin work immediately upon arrival at their destination (surgeons, rescue parties, etc.).

In recent years an attempt has been underway to combine drugs affecting the higher and autonomic divisions of the central nervous system. An example of this might be the mixture proposed by P. I. Syabro consisting of platyphylline — 0.005 g, caffeine — 0.1 g, potassium bromide — 0.15 g, papaverine — 0.03 g, and phenamine

— 0.005 g. The triple combination proposed by R. A. Okunev works well: caffeine — 0.2 g, diphasine (16-diethylaminoacetylphenothiazine) and dimerdrol (diphenhydramine) — 0.05 g each. Relief is observed in most cases after taking these drugs. They work especially well as prophylactics when they are taken 30-60 minutes before subjection to rolling.

The search for universal methods of prophylaxis against motion sickness must be hastened.

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